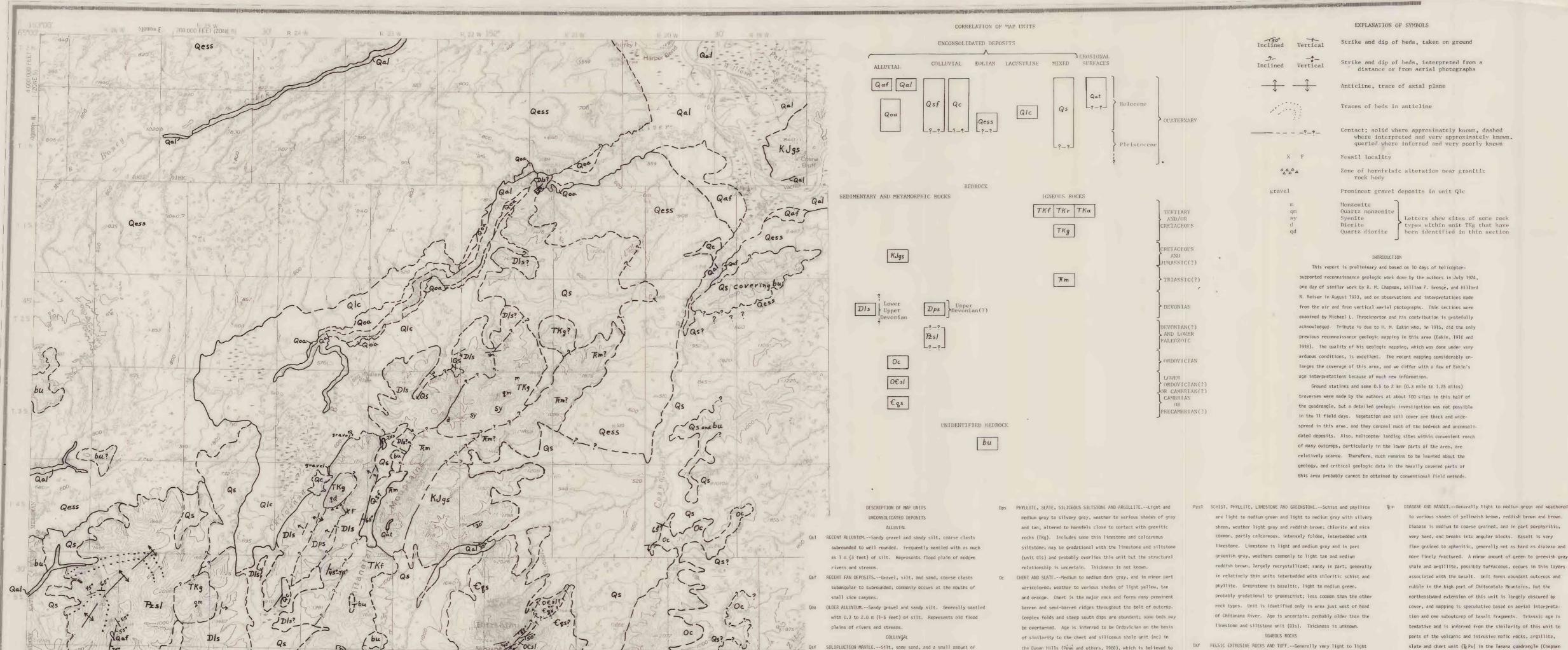
OPEN FILE MAP 75 - 351



larger rock fragments that range up to boulder size, commonly Derived mainly from valley sides by slow downslope soil creep

SAND AND SILT.--Occurs predominantly as elongate dunes trending NE-SW. Boundary with Qs (silt) frequently indistinct. LACUSTRINE

angular fragments of bedrock. Moves slowly downslope in

summer when thawed, producing streamline topography. Probably

makes up a considerable portion of the material mapped as Qs

COLLUVIUM, UNDIFFERENTIATED. -- Predominantly silt, with some

Qlc CLAY, SILT, SAND AND GRAVEL.--Well bedded lake deposits, flatlying, thin-bedded. Carbonized wood-rich material present at 2 horizons within the section; present only in the Chitanana River drainage basin. At least 60 m (200 feet) EROSIONAL SURFACES

> high areas; commonly possesses thin mantle of coarse, angular rock rubble. Individual terraces are generally less than 2 hectares (5 acres) in area.

ALTIPLANATION TERRACE.--Flat, even surface, cut on bedrock in

Qs SILT.--Probably includes both loess and solifluction mantle (Qsf). Generally poorly drained. Lakes are common, separated by low, elongated hills which are probably dunes.

BEDROCK SEDIMENTARY AND METAMORPHIC ROCKS

MIXED ENVIRONMENT

GRAYWACKE AND SHALE. -- Sandstone, siltstone, and shale, medium gray, generally thin bedded; minor amount of granule to small pebble conglomerate. Rocks are similar to those in the Cretaceous and Jurassic(?) units in the Livengood guadrangle (Chapman and others, 1971) and in the southeastern part of the Tanana quadrangle; age is assigned on this basis. Thick-

Dls LIMESTONE AND SILTSTONE. -- Chiefly limestone, medium to medium dark gray, weathers light to very light gray or tan, recrystallized in part, dolomitic in part; forms prominent sparselyvegetated ridges. Siltstone is medium gray, shaly to phyllitic and in part calcareous. Age is almost certainly early Late Devonian (Frasnian), based on identifications by W. A. Oliver, Jr., of Phillipsastrea or Pachyphyllum sp. (a massive rugose coral), Favosites? sp., Thammopora sp., and Disphyllum? sp., which were collected from the only known fossil locality (8 miles south of Redlands Lake). Unit, as mapped, may include some similar rocks of undetermined ages. Thickness unknown, but probably at least 150 m (500 feet).

the Dugan Hills (Pewe and others, 1966), which is believed to has been reidentified as Ordovician (U.S. Geol. Survey, 1972). Thickness unknown, but probably is at least 600 m (about

DESI SILTSTONE, LIMESTONE, PHYLLITE AND CHERT. -- Rocks are mostly light interhedded units Siltstone is commonly siliceous and is sandy in part; limestone is light to dark gray, very finely crystalline, dolomitic in part; phyllite is generally medium silvery gray but includes some dark gray graphitic beds, and in parts grades either to shale or slate; chert or metachert is mediumdark gray and is relatively rare. The red and green argillaceous rocks mentioned by Eakin (1918, p. 29-30) were not found part of this unit. It is likely that more rocks of this unit than have been mapped are present in this area; owing to complex structure, poor and inaccessible outcrops, and lack of time for detailed mapping, some of these rocks may be included in the underlying quartzite, metasiltstone, slate and grit unit (Egs). Age is interpreted to be Early Ordovician or Cambrian, and a correlation is inferred with part of the grit, argillite, quartzite and limestone unit (ng) in the Dugan Hills (Pewe and others, 1966) and with the argillite, slate, quartzite siltstone and limestone unit (Eal) in the Livengood quadrangle

(Chapman and others, 1971). Thickness is unknown.

Egs QUARTZITE, METASILTSTONE, SLATE AND GRIT. -- In general these rocks range from light to dark gray, and weather to various shades of brown, reddish brown and grayish brown, iron and manganese(?) stain and coatings are common. Quartzite is commonly light to medium gray, micaceous, very fine grained and grades to a metasiltstone; blocky, irregular fractures, schistose in part; grit beds are similar and relatively rare. Slate and phyllite are light-medium to dark-medium gray and greenish gray, banded with highest and central part of Bitzshtini Mountains are heavily iron stained and cut by many small felsic dikes and milky quart. veins; these rocks around the granitic stack at Havstack Mountain are altered to hornfels. Age is interpreted to be Cambrian (possibly Precambrian), and the unit is similar to, and inferred to be correlative with, part of the grit, argillite, quartzite and limestone unit (ng) in the Dugan Hills (Pewe and others, 1966) and with the grit, quartzite, slate and argillite unit (Egq) in the Livengood quadrangle (Chapman and others, 1971). Thickness is unknown, but probably is at least 600 to 1,000 m (2,000 to 3,300 feet)

gray, yellow, and pink to red, mostly deeply weathered and in part iron stained. Rhyolitic and andesitic rocks are very fine grained to aphanitic, porphyritic in part; some breccia with small fragments of medium green basaltic(?) rock; tuff is very fine grained and looks similar to the rhyolitic rocks; possibly some welded tuff. Age uncertain but believed to be no older nearly flat lying, and caps the ridges that extend south from the Chitanatala Mountains. Some siltstone and chert (bu) occur as rubble within this rock unit, and these, in part at least, apparently are part of an older underlying unit. Thickness probably ranges from a few tens of metres to at least 100 m

RHYOLITIC VOLCANIC ROCKS.--Rhyolite(?) porphyry is light to very light gray, mostly deeply weathered to light to medium vellow and reddish brown with abundant iron stain; mostly very fine grained; small phenocrysts of smoky quartz and kaolinized feldspar. Mapped only in southwest corner of map. Age uncertain; unit probably is closely allied with the felsic extrusive rocks and tuff (TKf) and is no older than the granitic intrusive rocks

ANDESITIC VOLCANIC ROCKS.--Andesite and trachyandesite are medium to light green and grayish green and weather to a dull medium brown and brownish green; fine and very fine grained, porphyritic and glomeroporphyritic, abundant plagioclase phenocrysts 5-6 mm (about 0.25 inch). Unit mapped only in southwest corner of map. Age uncertain; unit probably is closely related to units TKf and TKr, which are discussed above.

GRANITIC ROCKS .-- This unit includes monzonite (m), quartz monzonite (qm), syenite (sy), diorite (d), and quartz diorite (qd), which have been identified in thin section; these sample sites are shown on the map by the letter symbols. Minor amounts of rhyolite, andesite and other igneous rocks also are included in this unit, and more detailed fieldwork would be required to define the types and distribution of the various igneous rocks The rocks generally range from light to medium-dark gray and weather to various shades of brown and gray, and range from finely crystalline and equigranular to very coarsely crystalline and porphyritic. These rocks form relatively barren topographic prominences characterized by blocky rubble fields and less commonly by tors. Tertiary and/or Cretaceous age is speculative and based on analogies with similar granitic intrusive rocks of these ages in other parts of central interior Alaska. Presumably the granitic rocks are penecontemporaneous with, or slightly older than, the 3 units of felsic, rhyolitic

to various shades of vellowish brown, reddish brown and brown Diabase is medium to coarse grained, and in part porphyritic; very hard, and breaks into angular blocks. Basalt is very fine grained to aphanitic, generally not as hard as diabase and more finely fractured. A minor amount of green to greenish gray shale and argillite, possibly tuffaceous, occurs in thin layers associated with the basalt. Unit forms abundant outcrops and rubble in the high part of Chitanatala Mountains, but the tion and one suboutcrop of basalt fragments. Triassic age is tentative and is inferred from the similarity of this unit to parts of the volcanic and intrusive mafic rocks, argillite, slate and chert unit (To Pv) in the Tanana guadrangle (Chapman and Yeend, 1972) and elsewhere in interior Alaska. A syenite dike intrudes the basalt, and, if this dike is related to the syenite (sy in TKg) about 6 miles north, the diabase and basalt must be older than unit TKg. The contact between this diabase and basalt unit and the adjoining rock units (TKf, TKg, Dls and KJgs) was not seen.

UNIDENTIFIED ROCKS bu BEDROCK OF UNKNOWN TYPE OR AGE. -- Includes rubble of metasiltstone and chert, believed to be older than surrounding felsic extrusive rocks and tuff (TKf) near south end of Chitanatala Mountains, and a small outcrop of white, very fine grained quartz sandstone on south bank of North Fork Kuskokwim River; these rocks could not be satisfactorily correlated with the field mapping units. All of the other areas were identified as bedrock or probable bedrock from aerial observations or airphoto interpretation, but were not examined on the ground and the rock type could not be interpreted with any degree of

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> This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

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PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE WESTERN HALF OF KANTISHNA RIVER QUADRANGLE, ALASKA

1975

ROBERT M. CHAPMAN, WARREN E. YEEND, AND WILLIAM W. PATTON, JR.



KANTISHNA RIVER. ALASKA

1952

ROAD CLASSIFICATION